



URL Career Path Simulation Model

**Fourth Annual Navy Workforce
Research & Analysis Conference**
Navy Personnel Research, Studies, & Technology

Introduction

NPRST

- **Officer Community Management (OCM)**

Billet management, promotion, accessions, retention, force shaping, and training oversight

Works w/Detailer on career requirements and balancing the needs of the Navy

Functional Problems

- ***Not*** enough 0-4's for DH
- DH tour lengths ***too*** long
- DH billets down-graded to DIVO billets
- Training lengths ***too*** long and number of billets needed ***not*** clear
- Best timing of training ***not*** clear
- Impact of additional gate requirements (Joint duty)
- ***What*** happens ***if*** decommission/commission X ships
- ***What if*** redefine/initialize a new community

Technical Approach

- **Discrete entity-based simulation - variables (individuals) change instantaneously at separate points in time**

Entities/events

- › **Attributes pertinent to career path**
- › **Promotions**
- › **Continuation and losses**
- › **Gains**

States

- › **Officer Programmed Authorizations (OPA) is given by paygrade**
- › **Career related milestones**

Conversion to Milestones

Individual Entity:



Billet Resource:



Underlying Business Rules

- **Nominal career path**
 - Timeline of statutory boards**
 - Where milestone (DH, XO, CO) occurs per community**
- **Billets**
 - Determining quality (subspecialty), level of responsibility**
 - Quantity (Paygrade (PG), milestone)**
- **Inventory (Years of Commissioned Service (YCS), PG, gender, and milestone)**
- **Community shaping “policy” & metrics**
 - Continuation, promotion, tour lengths, laterals,**

**Mirrors the Career Development Community
Planning Process**

Nominal Career Path

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SWO

SWO/EOOW
Quals

DIVO

Masters
PGM

TAO Qual

DH

DC/Joint/
JPME/
Exp Tour

XO
SCR

XO

CDR
CMD
SCR

DC/Joint/
BG Staff

CO

DC/Joint/
BG Staff

MAJ
CMD
SCR

MAJ

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28

Statutory Boards

O-4

O-5

O-6

Fly 8 of 12 for FLT Gates

Fly 12 of 18 for FLT Gates

Sea
Tours

SQDN

DA Sea
SQDN
Staff

**SQDN
DH**

**SQDN
XO/CO**

**MAJ
CDM**

Shore
Tours

**FLT
TRG**

FRS
TRACOM
Staff /
Aide/
Inst/PG

Shore
Tour

PXO
FRS

OPNAV/
FLT Staff/
NPC Staff/
DC/JPME/
Joint/Grad
Ed

FLAG

CDR
CMD
SCR

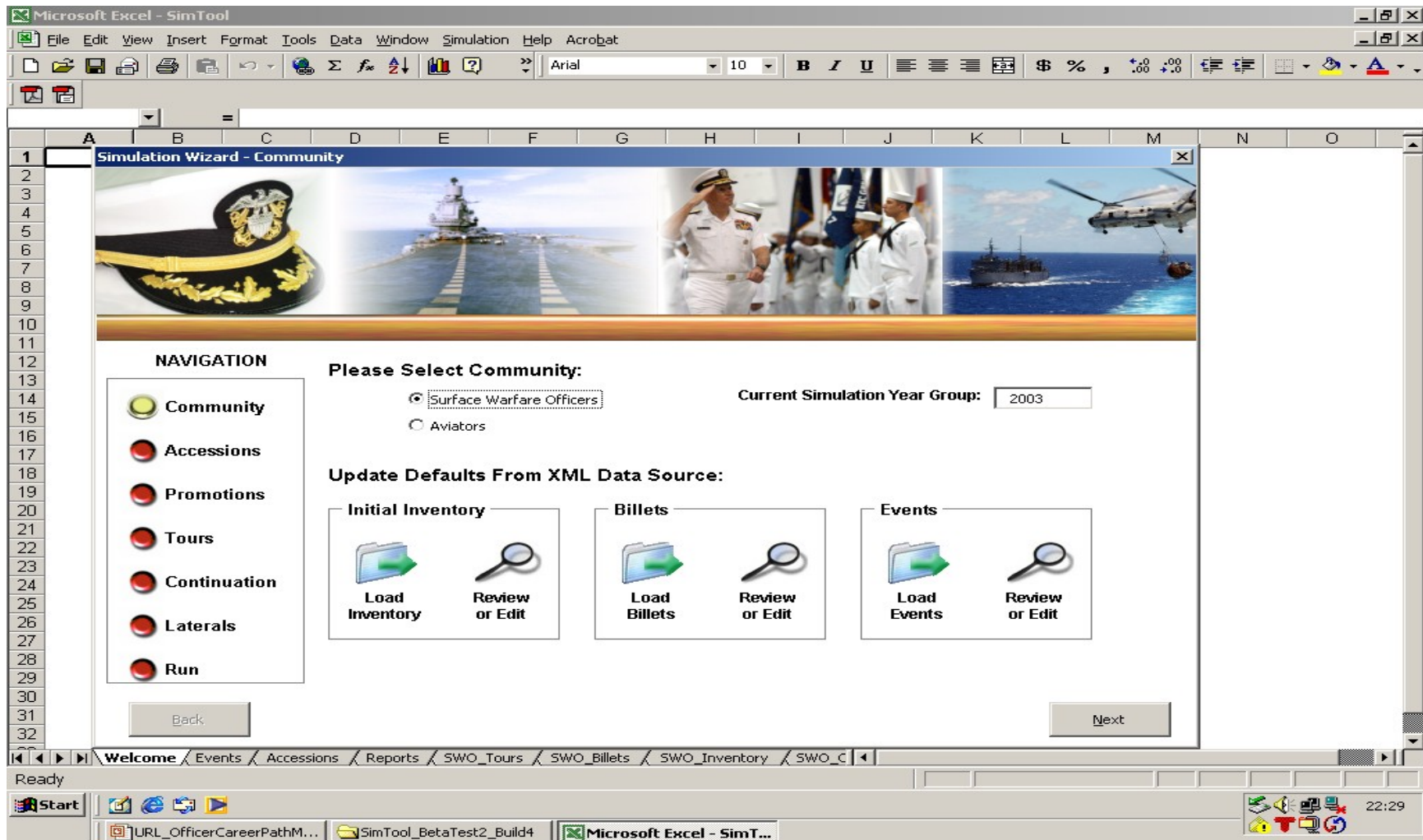
MAJ
CMD
SCR



Aviator

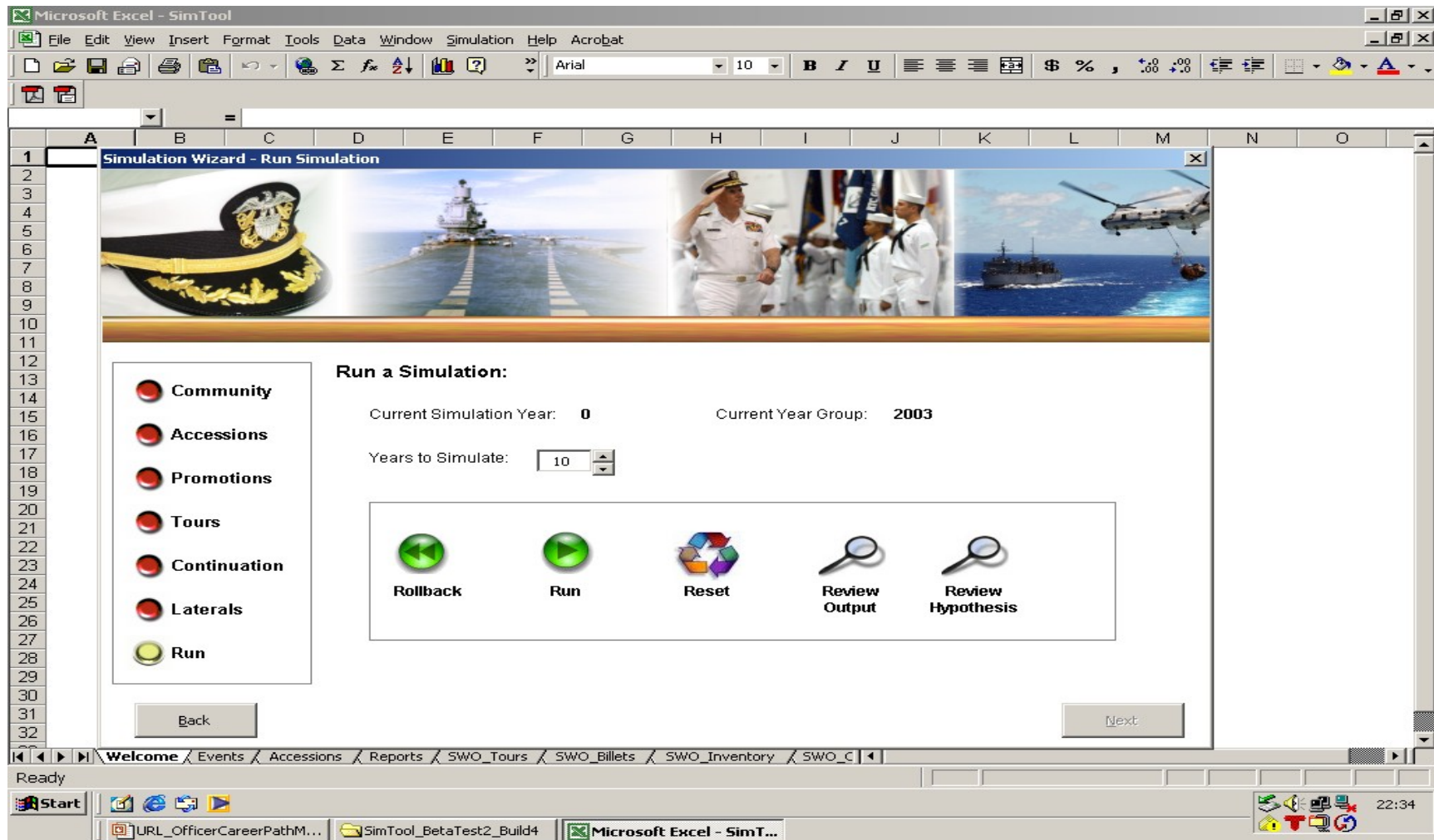
Community Modeling Screen

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Run Simulation Screen

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OCM Metrics

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- **Continuation rates (MSR & survival rates)**
- **Accessions and laterals**
- **Total community inventory vs. requirements**

Table - rank, YCS and gender

Inventory - OPA difference by rank

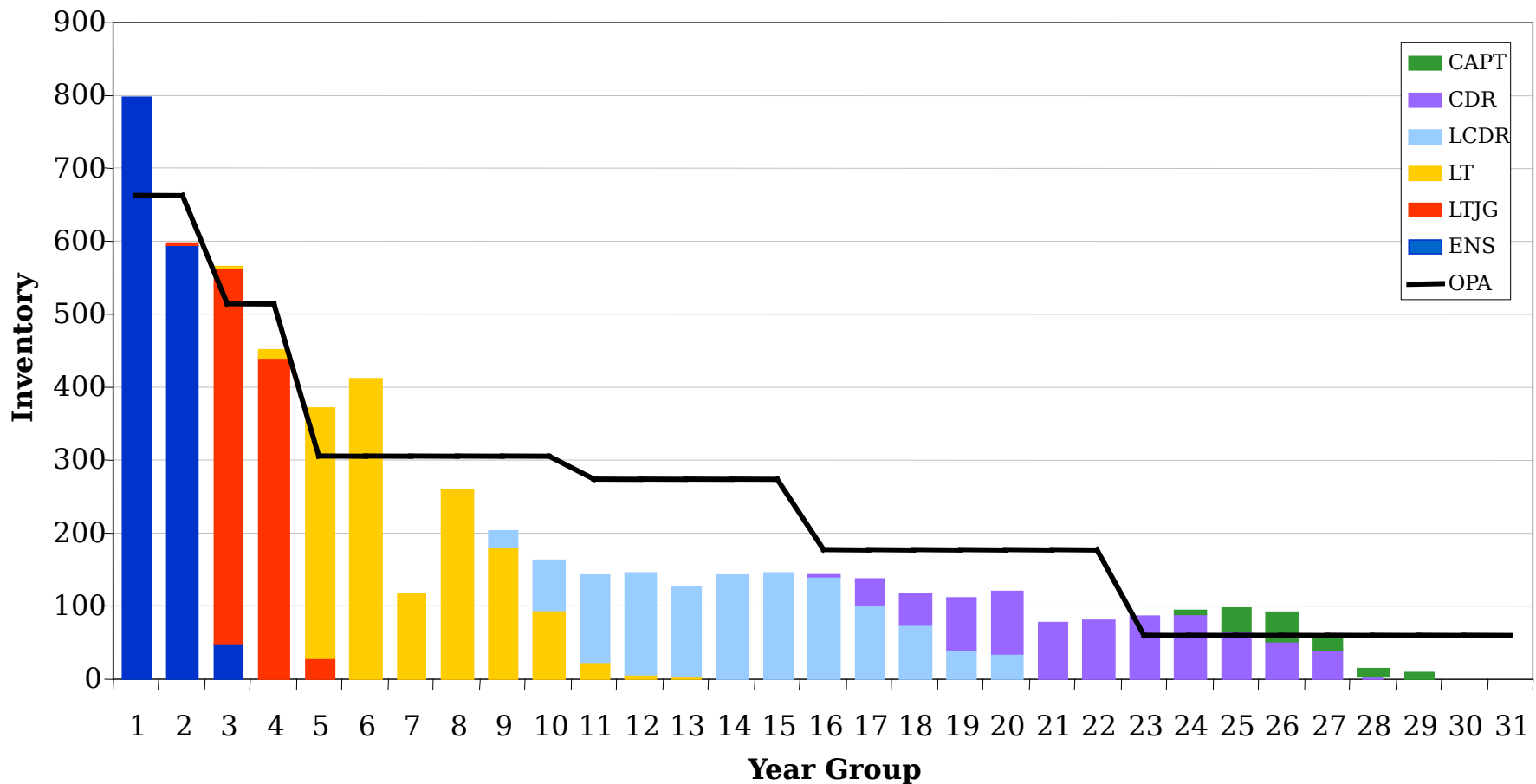
Milestone inventory vs. milestone billets

- **Flow point (average time to make rank)**
- **Tour length (in milestone billets DH, XO, CO, MC)**
- **Opportunity (rank and milestone)**

Metrics: Inventory vs. Requirements by Year Group

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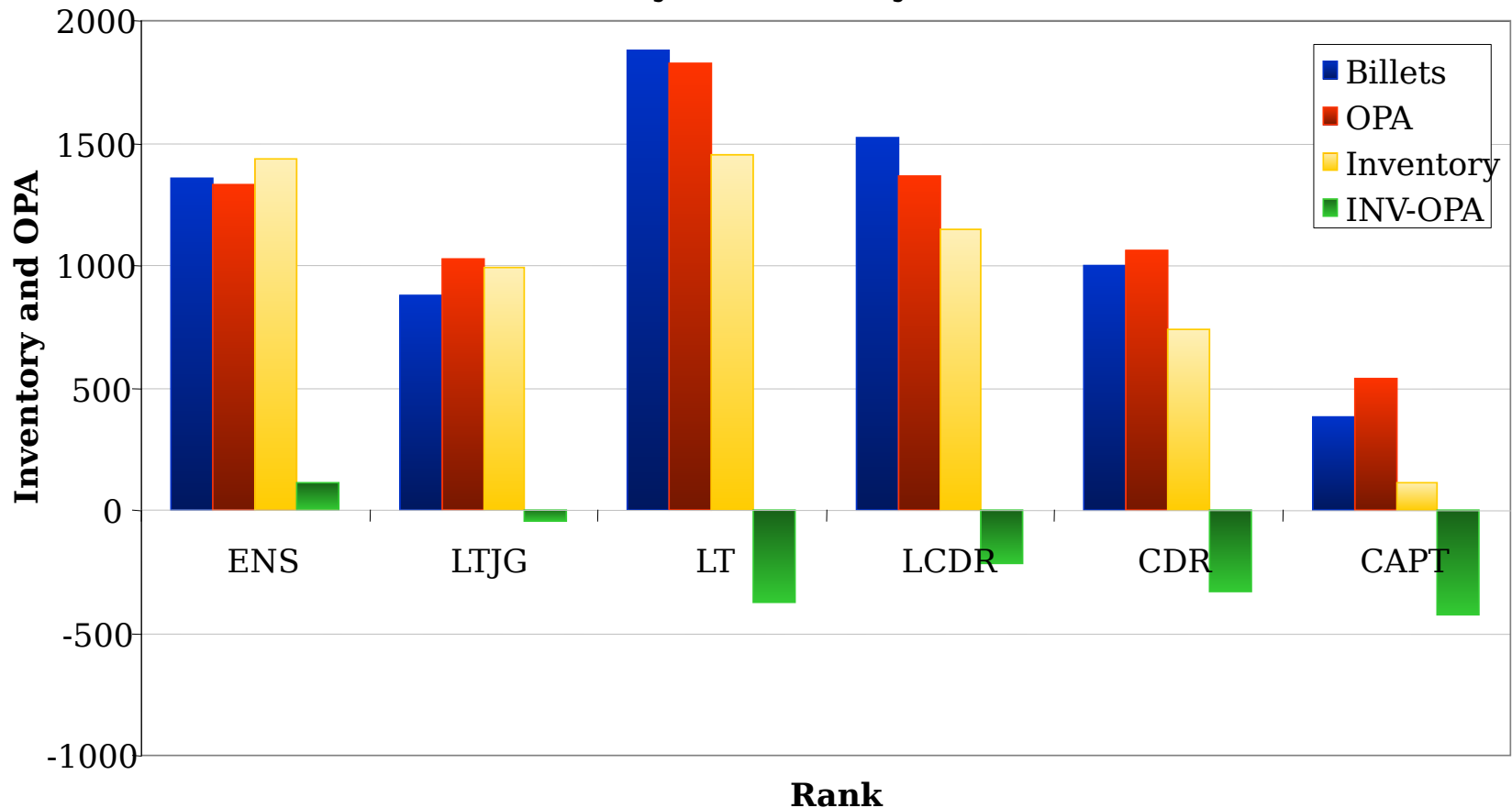
Total Inventory vs. OPA by Rank - Simulation Year: 2004



Metrics: Inventory vs. Requirement by Rank

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Total Inventory vs. OPA by Rank - Simulation Year: 2004



Metrics: Inventory by Milestone and Tour

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Microsoft Excel - SimTool

File Edit View Insert Format Tools Data Window Simulation

Review Output

Return to Wizard

Print this Page

Quit Wizard

A1 = Simulation Year: 1

A	B	C	D	E	F	G
Male Tour Inventory					Female Tour Inventory	
104	SVOSQUEUE		0		SVOSQUEUE	0
106	SVOSBASIC		0		SVOSBASIC	0
107	NPME1	605			NPME1	215
108	SPLITDIY01	591			SPLITDIY01	105
109	EARLYSHR	64			EARLYSHR	16
110	SPLITDIY02	463			SPLITDIY02	95
111	PGS	77			PGS	21
112	SHRIDISSEA	25			SHRIDISSEA	1
113	NPME2	536			NPME2	123
114	DHS	707			DHS	167
115	SPLITDH1	220			SPLITDH1	69
116	SPLITDH2	67			SPLITDH2	27
117	JOINT1	219			JOINT1	64
118	JPME	41			JPME	14
119	SHR2COMSEA	32			SHR2COMSEA	0
120	O4COS	265			O4COS	52
121	XOS	0			XOS	0
122	O4CO	28			O4CO	0
123	XO	64			XO	11
124	JOINT2	329			JOINT2	25
125	SPME1	27			SPME1	0
126	SHR3COMSEA	12			SHR3COMSEA	0
127	COS	189			COS	7
128	O5CO	100			O5CO	2
129	O5SEA	43			O5SEA	0
130	JOINT3	154			JOINT3	0
131	SPME2	0			SPME2	0
132	SHORE4	0			SHORE4	0
133	MCSEA	0			MCSEA	0
134	MCSHR	0			MCSHR	0
135	JOINT4	0			JOINT4	0
136	SEQCOM	0			SEQCOM	0
137	SHORE5	0			SHORE5	0
138	FLAG	0			FLAG	0
139						
140						
141						
142	Accessions					
143	Male	Female				
144	O-1	608	217			
145	O-2	2	0			
146						

Reports | SWO_Tours | SWO_Billets | SWO_Inventory | SWO_OPA | AVI_Tours | AVI_Billets | A

Ready

Start

URL_OfficerCareerPathM... SimTool_BetaTest2_Build4 Microsoft Excel - SimT...

22:42

Metrics: Rank Opportunity and Flow

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Microsoft Excel - SimTool

File Edit View Insert Format Tools Data Window Simulation

U184

Accessions

	Male	Female
O-1	608	217
O-2	2	0

Selection Rates

	Pool	Selected	Rate
O-2	545	545	1
O-3	462	462	1
O-4 Above	73	7	0.09589
O-4 In	175	105	0.6
O-4 Below	0	0	0
O-5 Above	76	7	0.092105
O-5 In	79	47	0.594937
O-5 Below	533	5	0.009381
O-6 Above	59	5	0.084746
O-6 In	70	42	0.6
O-6 Below	355	3	0.008451

Average Time in Rank

Rank	Time
O-1	2
O-2	2
O-3	4.666667
O-4	7.916667
O-5	7.333333

Review Output

Return to Wizard Print this Page Quit Wizard

Ready

Start

URL_OfficerCareerPathM... SimTool_BetaTest2_Build4 Microsoft Excel - SimT...

22:49

Analysis Scenarios

Scenario	Model Analysis	Metrics
Reduce the accession of SWO Officers by 7% until a steady state value of 600	(1) Adjust accession input (2) increase continuation rate from historical (3) Follow DOPMA promotion rates.	(1) Inventory Difference by rank, (2) Average Time In Rank summed to Flow Point (3) Promotion Rates.

Metrics: Rank Opportunity and Flow

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Microsoft Excel - SimTool

File Edit View Insert Format Tools Data Window Simulation

Review Output

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D1453

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1452																				
1453																				
1454																				
1455																				
1456																				
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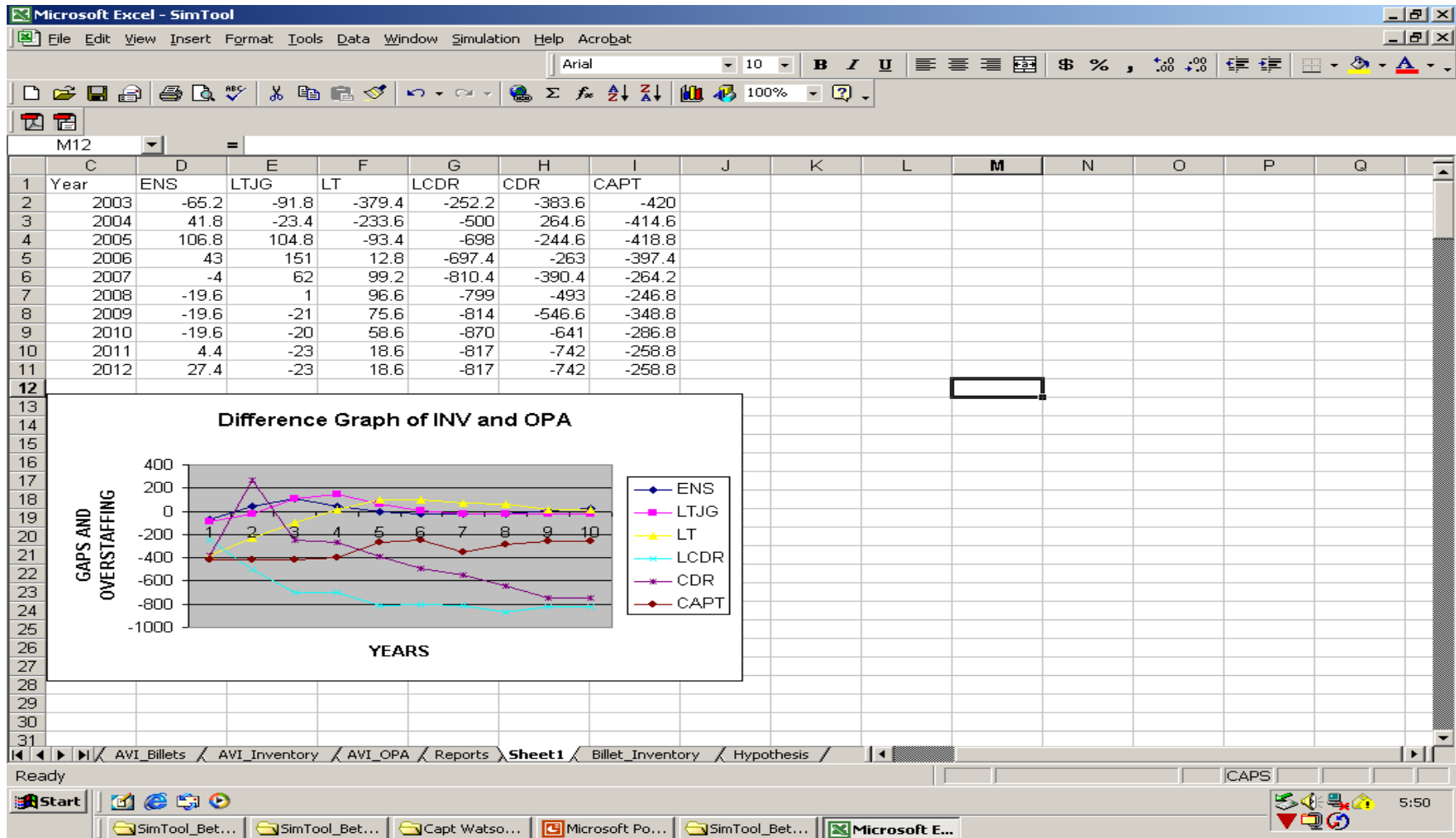
Start

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5:06

Metric: Difference Graph of INV and OPA

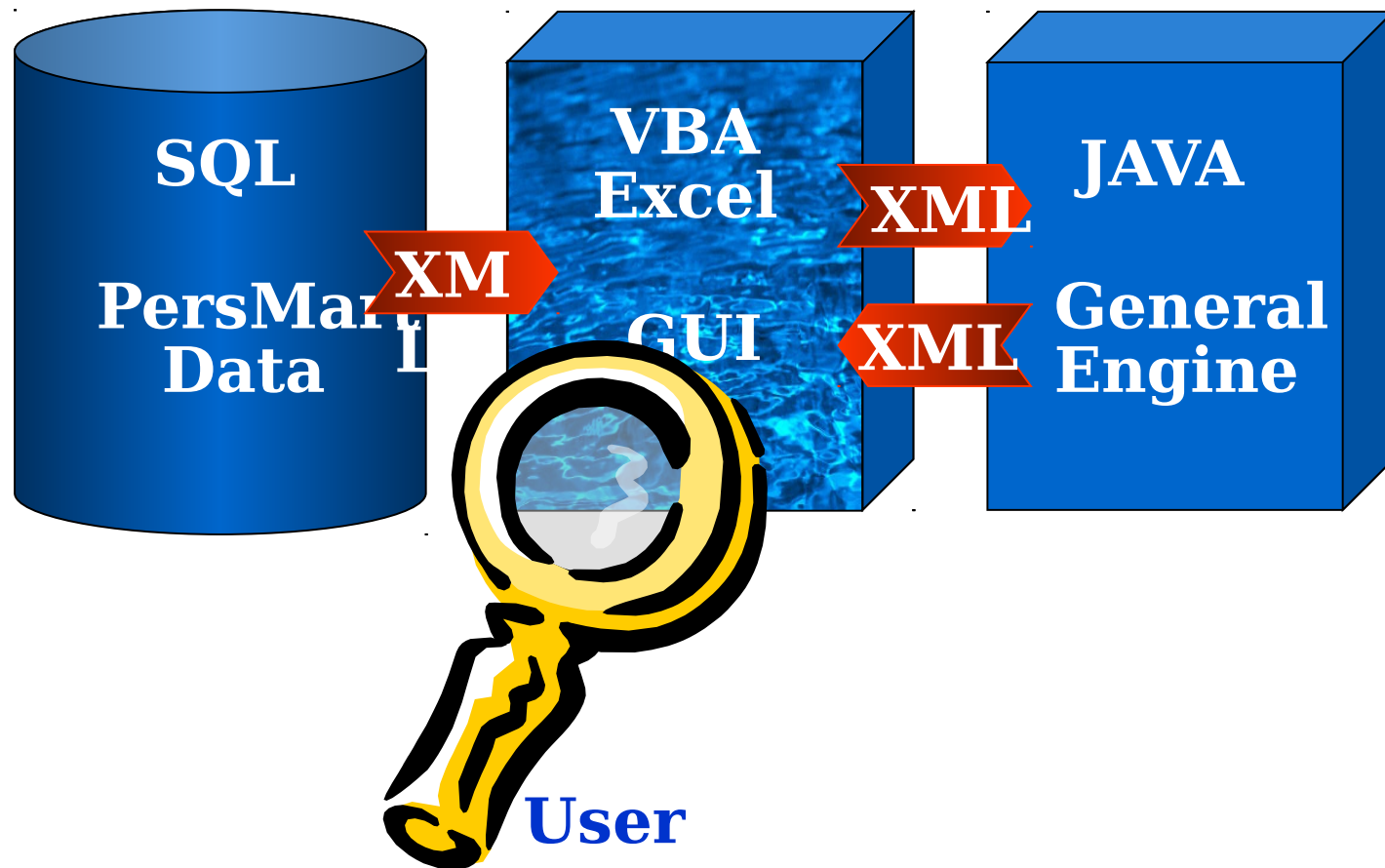
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Back-up Slides

Model Software Architecture

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Review Inventory by Rank & YCS

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Microsoft Excel - SimTool

File Edit View Insert Format Tools Data Window Simulation Help

AI19 =SUM(AC19:AH19)

Total Inventory								Male Operational Strength								
	ENS	LTJG	LT	LCDR	CDR	CAPT	Total	YCS	ENS	LTJG	LT	LCDR	CDR	CAPT	Total	YCS
1	781	2	0	0	0	0	783	1	569	2	0	0	0	0	571	1
2	853	2	0	0	0	0	855	2	633	2	0	0	0	0	635	2
3	78	710	1	0	0	0	789	3	68	517	1	0	0	0	586	3
4	0	644	1	0	0	0	645	4	0	477	1	0	0	0	478	4
5	0	73	420	0	0	0	493	5	0	60	298	0	0	0	358	5
6	0	0	424	0	0	0	424	6	0	0	311	0	0	0	311	6
7	0	0	355	0	0	0	355	7	0	0	251	0	0	0	251	7
8	0	0	317	0	0	0	317	8	0	0	210	0	0	0	210	8
9	0	0	303	10	0	0	313	9	0	0	198	9	0	0	207	9
10	0	0	236	36	0	0	272	10	0	0	156	27	0	0	183	10
11	0	0	62	111	0	0	173	11	0	0	37	82	0	0	119	11
12	0	0	23	117	0	0	140	12	0	0	14	88	0	0	102	12
13	0	0	4	116	0	0	120	13	0	0	2	69	0	0	71	13
14	0	0	0	139	1	0	140	14	0	0	0	87	0	0	87	14
15	0	0	0	102	20	0	122	15	0	0	0	72	11	0	83	15
16	0	0	0	78	57	0	135	16	0	0	0	53	41	0	94	16
17	0	0	0	56	58	0	114	17	0	0	0	42	43	0	85	17
18	0	0	0	41	92	0	133	18	0	0	0	35	67	0	102	18
19	0	0	0	40	85	0	125	19	0	0	0	26	67	0	93	19
20	0	0	0	4	103	1	108	20	0	0	0	3	69	1	73	20
21	0	0	0	1	73	1	75	21	0	0	0	1	45	0	46	21
22	0	0	0	0	75	2	77	22	0	0	0	0	54	1	55	22
23	0	0	0	0	46	6	52	23	0	0	0	0	32	1	33	23
24	0	0	0	0	31	11	42	24	0	0	0	0	23	8	31	24
25	0	0	0	0	25	9	34	25	0	0	0	0	18	6	24	25
26	0	0	0	0	4	9	13	26	0	0	0	0	2	7	9	26
27	0	0	0	0	0	9	9	27	0	0	0	0	0	7	7	27
28	0	0	0	0	0	3	3	28	0	0	0	0	0	2	2	28
29	0	0	0	0	0	3	3	29	0	0	0	0	0	2	2	29
30	0	0	0	0	0	2	2	30	0	0	0	0	0	1	1	30
31	0	0	0	0	0	2	2	31	0	0	0	0	0	1	1	31
Total	1712	1431	2146	851	670	58	6868	Total	1270	1058	1479	594	472	37	4910	Total

Review Initial Inventory

Return to Wizard Print this Page Quit Wizard

Welcome Events Accessions SWO_Tours SWO_Billets SWO_Inventory SWO_OPA SWC

Ready

Start

Inbox - Microsoft O... SimTool Microsoft PowerPoi... Document1 - Micro... SimTool Microsoft Excel - ...

Billet Review

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Microsoft Excel - SimTool

File Edit View Insert Format Tools Data Window Simulation Help

Arial 10 B I U

R1C1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

1 SWO Billets

2

3

4 Total Billets

5 7033

6

7 Rank - Total Billets

8

9 O6 386

10 O5 1002

11 O4 1526

12 O3 1880

13 O2 880

14 O1 1359

15

16 Rank - Single Platform Billets

17 AGF AOE ARS CG-CGN DD DDG FFG LCC LHA LHD LPD LSD MCM MHC OTHER Dumm 1 Dumm 2 Du

18 O1 4 4 0 7 4 4 6 7 4 4 3 1 0 0 612 0 0

19 O2 0 3 0 6 7 5 0 4 2 4 4 5 2 2 181 1 0

20 O3 3 0 1 1 5 3 0 1 1 1 1 3 0 1 1571 0 0

21 O4 2 2 1 3 0 2 0 1 4 3 0 1 1 0 1263 1 0

22 O5 1 1 0 1 0 1 0 2 3 2 1 1 0 0 863 0 0

23 O6 1 0 0 1 0 0 0 1 0 0 0 0 0 0 355 0 0

24

25 2 6 4 27 11 45 32 2 5 7 11 15 14 12 1 0 0

26

27 Rank - Total Platform Billets

28 AGF AOE ARS CG-CGN DD DDG FFG LCC LHA LHD LPD LSD MCM MHC OTHER Dumm 1 Dumm 2 Du

29 O1 8 24 0 189 44 180 192 14 20 28 33 15 0 0 612 0 0

30 O2 0 18 0 162 77 225 0 8 10 28 44 75 28 24 181 0 0

31 O3 6 0 4 27 55 135 0 2 5 7 11 45 0 12 1571 0 0

32 O4 4 12 4 81 0 90 0 2 20 21 0 15 14 0 1263 0 0

33 O5 2 6 0 27 0 45 0 4 15 14 11 15 0 0 863 0 0

34 O6 2 0 0 27 0 0 0 2 0 0 0 0 0 0 355 0 0

35

36 Tours - Total Billets

37 Enforce Billets? TRUE FALSE

38 SVOSQUEUE 0 FALSE

39 SVOSBASIC 0 FALSE

40 SPLITDI01 723 FALSE

41 EARLYSHR 0 FALSE

42 SPLITDI02 905 FALSE

43 PGS 0 FALSE

44

Welcome Events Accessions Reports SWO_Tours SWO_Billets SWO_Inventory SWO_C

Ready

NUM

Start CPT Sent Item... Distributio... URL Office... N131 Bran... SimTool Microsoft... 21:14

Objective

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- **Support the OCMs with their mission:**
 - “ ...to attract and retain the necessary quantity and quality of officers to ensure the safe and effective manning and employment of all Naval platforms”
- **Provide a model that assist with milestone level inventory planning**
- **Provide a model that simulates career progression w/i billet constraints (decrease stagnation and gaps)**
- **Provide a tool that shows the impact when manipulating community management policies for better planning**

Background

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- **In FY01, the Chief of Naval Personnel initiated an effort to study the career path of an officer within the Unrestricted Line (URL) Community**
- **Additionally, included in the N1 Guidance for FY03, review URL career paths so that it better prepares, educates, and develops Officers to led our Sailors and meet operational requirements through to flag rank**

Model Assumptions

- Continuation rates (historical, adjustable)
- Promotion rates are **NOT** gender specific
- One qualifying billet per rank
- Lateral transfers are on track and occur in pertinent YCS per rank
- Laterals out modeled as a loss
- Transient time of 1 month is added to tour lengths
- IA includes Officers in training

Strength numbers provided by N131 (Officer Strength) Officer Community Overview

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